

## WHAT IS CLAIMED IS:

- 1        1.    A method for object model processing, comprising:  
2            generating a first view of an object model along a  
3                specified direction (draw direction);  
4            identifying first-view edges and first-view faces  
5                visible in the first view;  
6            generating a second view, opposite of the first  
7                view(against the draw direction);  
8            identifying second-view edges and second-view faces  
9                visible in the second view; and  
10          assigning a region to each of the first-view edges,  
11                first-view faces, second-view edges, and second-  
12                view faces.

1        2.    The method of claim 1, wherein the regions are  
2            assigned so that  
3            if a face is a first-view face only, then it is  
4                assigned to the cavity face region;  
5            if a face is a second-view face only, then it is  
6                assigned to the core face region;  
7            if a face is a first-view face and a second-view  
8                face, then it is assigned to the crossover face  
9                region;  
10          if a face is non-a first-view face and non-a second-  
11                view face, then it is assigned to the undercut  
12                face region;  
13          if an edge is non-a first-view edge and non-a second-  
14                view edge, then it is assigned to the undercut  
15                edge region; and  
16          if an edge has two adjacent faces belonging to a  
17                cavity and a core face each, then it is assigned  
18                to the parting edge region.

1        3.    The method of claim 1, further comprising identifying  
2            parting loops, including a parting line loop and patch  
3            loops, wherein parting loops are comprised of parting  
4            edges, and a parting line loop is defined as the one  
5            with maximum loop length against draw direction, and  
6            all other loops are assigned as patch loops.

1        4.    The method of claim 1, further comprising storing the  
2            assigned regions.

1        5.    The method of claim 1, wherein the first view is a top  
2            view and the second view is a bottom view.

1       6.    The method of claim 1, further comprising selecting an  
2           object model.

1       7.    The method of claim 1, further comprising specifying a  
2           draw direction.

1       8.    A data processing system having at least a processor  
2            and accessible memory, comprising:  
3            means for generating a first view of an object model;  
4            means for identifying first-view edges and first-view  
5                faces visible in the first view;  
6            means for generating a second view, opposite of the  
7                first view;  
8            means for identifying second-view edges and second-  
9                view faces visible in the second view; and  
10          means for assigning a region to each of the first-view  
11            edges, first-view faces, second-view edges, and  
12            second-view faces.

1       9.    The data processing system of claim 8, wherein the  
2            regions are assigned so that  
3            if a face is a first-view face only, then it is  
4                assigned to the cavity face region;  
5            if a face is a second-view face only, then it is  
6                assigned to the core face region;  
7            if a face is a first-view face and a second-view  
8                face, then it is assigned to the crossover face  
9                region;  
10          if a face is non-a first-view face and non-a second-  
11            view face, then it is assigned to the undercut  
12            face region;  
13          if an edge is non-a first-view edge and non-a second-  
14            view edge, then it is assigned to the undercut  
15            edge region; and  
16          if an edge has two adjacent faces belonging to a  
17            cavity and a core face each, then it is assigned  
18            to the parting edge region.

1 10. The data processing system of claim 8, further  
2 comprising means for identifying parting loops,  
3 including a parting line loop and patch loops, wherein  
4 parting loops are comprised of parting edges, and a  
5 parting line loop is defined as the one with maximum  
6 loop length against draw direction, and all other  
7 loops are assigned as patch loops.

1 11. The data processing system of claim 8, further  
2 comprising means for storing the assigned regions.

1 12. The data processing system of claim 8, wherein the  
2 first view is a top view and the second view is a  
3 bottom view.

1 13. The data processing system of claim 8, further  
2 comprising means for selecting an object model.

1 14. The data processing system of claim 8, further  
2 comprising means for specifying a draw direction.

1 15. A computer program product tangibly embodied in a  
2 computer-readable medium, comprising:  
3 instructions for generating a first view of an object  
4 model;  
5 instructions for identifying first-view edges and  
6 first-view faces visible in the first view;  
7 instructions for generating a second view, opposite of  
8 the first view;  
9 instructions for identifying second-view edges and  
10 second-view faces visible in the second view; and  
11 instructions for assigning a region to each of the  
12 first-view edges, first-view faces, second-view  
13 edges, and second-view faces.

1 16. The computer program product of claim 15, wherein the  
2 regions are assigned so that  
3 if a face is a first-view face only, then it is  
4 assigned to the cavity face region;  
5 if a face is a second-view face only, then it is  
6 assigned to the core face region;  
7 if a face is a first-view face and a second-view  
8 face, then it is assigned to the crossover face  
9 region;  
10 if a face is non-a first-view face and non-a second-  
11 view face, then it is assigned to the undercut  
12 face region;  
13 if an edge is non-a first-view edge and non-a second-  
14 view edge, then it is assigned to the undercut  
15 edge region; and

16           if an edge has two adjacent faces belonging to a  
17           cavity and a core face each, then it is assigned  
18           to the parting edge region.

1       17. The computer program product of claim 15, further  
2       comprising instructions for identifying parting loops,  
3       including a parting line loop and patch loops, wherein  
4       parting loops are comprised of parting edges, and a  
5       parting line loop is defined as the one with maximum  
6       loop length against draw direction, and all other  
7       loops are assigned as patch loops.

1       18. The computer program product of claim 15, further  
2       comprising instructions for storing the assigned  
3       regions.

1       19. The computer program product of claim 15, wherein the  
2       first view is a top view and the second view is a  
3       bottom view.

1       20. The computer program product of claim 15, further  
2       comprising instructions for selecting an object model.

1       21. The computer program product of claim 15, further  
2       comprising instructions for specifying a draw  
3       direction.